NCHEMS Student Flow Model for Virginia

May 21, 2009

Council on Virginia's Future

National Center for Higher Education Management Systems

The Gap

Matching Best-Performing Countries by 2020 (Associate and Higher)

Projected 25 to 64 Year Olds in 2020	4,573,930
Educational Attainment Needed to Match Best-Performing Countries (Assoc and Higher)	2,359,233
25 to 52 Year Olds with College Degrees (Who will Still be in the Cohort in 2020)	1,357,135
Maintaining Recent Annual Net Migration of College Degree Holders	217,152
Degrees Produced at Current Annual Rate by 2020	680,280
Gap: Additional Degrees (Associate and Bachelor's) Needed by 2020	**104,666**

Closing Degree Gap: Linear Progress by Year

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1,342												
	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342
		1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342	1,342
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											1,342	1,342
												1,342
Total	1,342	2,684	4,026	5,367	6,709	8,051	9,393	10,735	12,077	13,419	14,761	16,102

Overview – Purpose of the Model

- Gauge levels of performance it will take for Virginia to close the educational attainment gap with best-performing countries (the U.S. Average for some states)

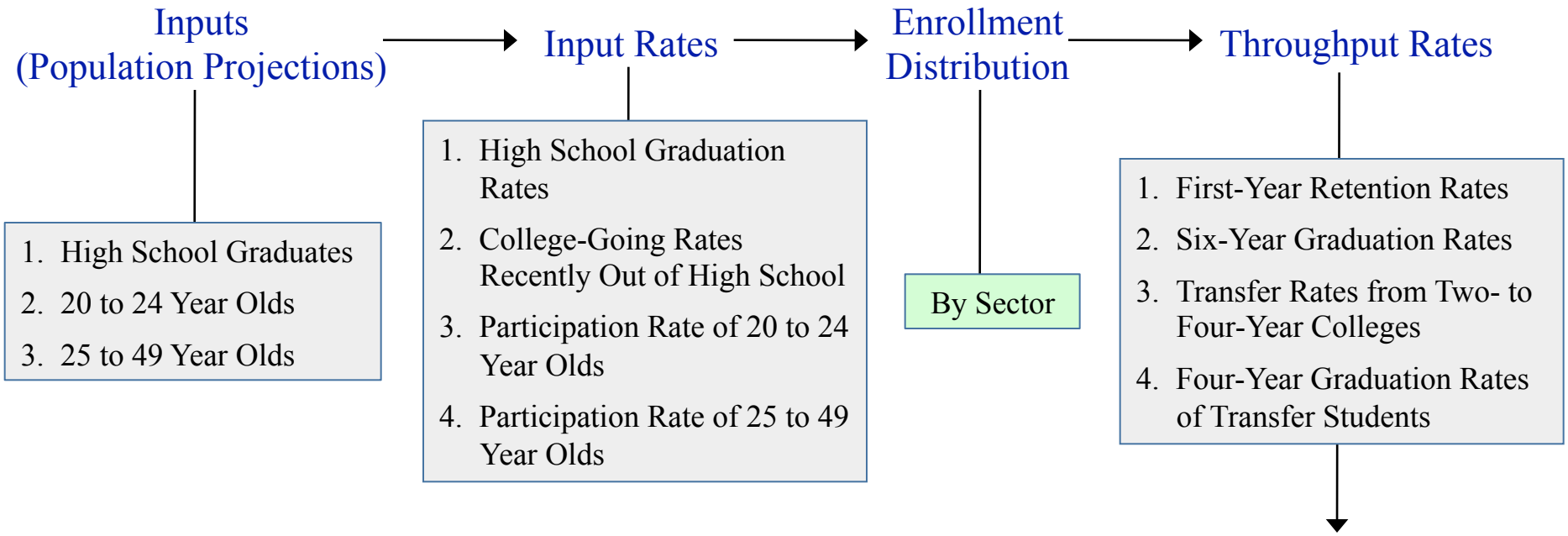
- Identify improvements along the education pipeline yield the greatest results (e.g. college-going rates, first-year retentions rates, six-year graduation rates, etc.)

- Estimate the costs to the state and students to achieve certain results – operating "business as usual"

- Estimate the reduction in spending on students who otherwise would have dropped out without a credential

NCHEMS Student Flow Model for Virginia Public Higher Education

(Measures Used to Project the Impact of Improved Performance by 2020)



Data Sources

1. Projections of High School Graduates – WICHE Knocking at the College Door
2. Projections by Age-Group – U.S. Census Bureau or State Demographer
3. High School Graduation Rates – NCES, Common Core Data
4. College-Going Rates Recently Out of High School – NCES, Common Core Data and IPEDS Fall Residency and Migration Survey
5. Participation Rate by Age-Group – Detailed Cohort Data Provided by SHEEO Agency and U.S. Census Bureau
6. Throughput Rates (Retention, Transfer, and Graduation Rates) – Detailed Cohort Data Provided by SHEEO Agency
7. Data for Cost Assessing Outcomes – NCES, IPEDS Finance Survey or SHEEO Agency

Assessed Outcomes

1. Additional Certificates, Associate, and Bachelors Degrees Produced
2. Additional Enrollment Needed by Sector
3. Additional Costs to the State and Students Operating at Current $ per FTE Student
4. Decreased Spending on "Dropouts" (State and Institutions)

Example of Cohort Persistence and Completion Data Required for the Model

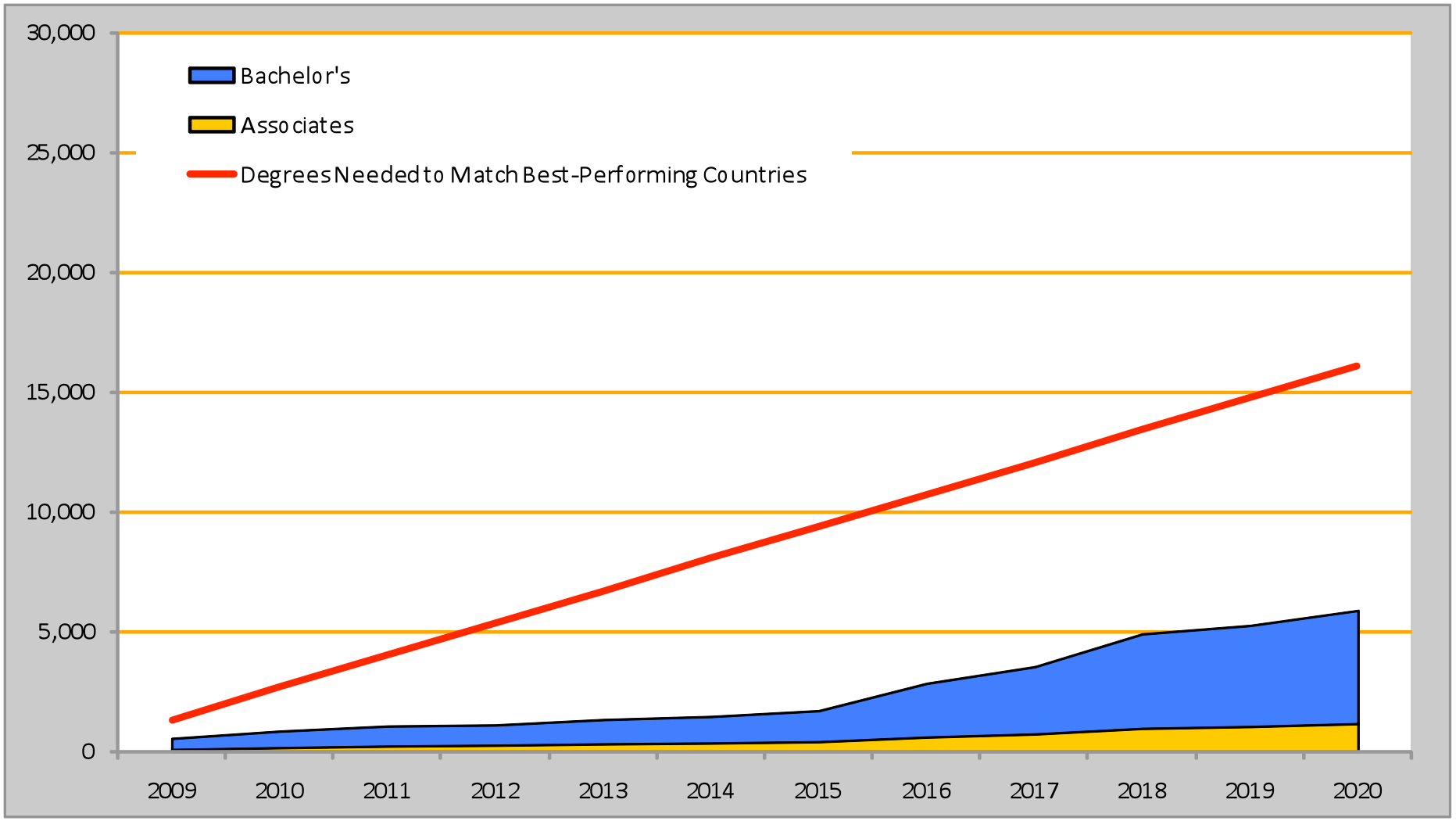
Public 4-Year Cohort Progression

	Entering Status	Enrollment/Degree Status	First-Time Entering /Fall/Spring/Summer (Unduplicated), Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
From In-State	Directly From High School	Enrolled	**20,000**	14,991	13,214	12,488	7,624	3,011	1,555	445
		Certificate/Diploma	0	0	0	0	0	0	0	0
		Associates Degree	0	0	0	0	0	0	0	0
		Bachelors Degree	0	14	277	4,462	4,491	1,461	682	148
	25 and Older	Enrolled	**2,000**	1,028	759	514	310	205	99	43
		Certificate/Diploma	0	0	0	0	0	0	0	0
		Associates Degree	0	0	0	0	0	0	0	0
		Bachelors Degree	0	105	139	148	102	63	40	0
	Other	Enrolled	**4,000**	2,393	1,869	1,518	933	430	243	98
		Certificate/Diploma	0	0	0	0	0	0	0	0
		Associates Degree	0	0	0	0	0	0	0	0
		Bachelors Degree	0	89	171	503	473	189	82	28
	Out-of-State	Enrolled	**3,000**	2,336	1,701	830	374	185	102	38
		Certificate/Diploma	0	0	0	0	0	0	0	0
		Associates Degree	0	0	0	0	0	0	0	0
		Bachelors Degree	11	377	766	438	182	81	41	13
	Transfers from CCs	Enrolled	**7,000**	5,450	3,970	1,937	872	432	239	89
		Certificate/Diploma	0	0	0	0	0	0	0	0
		Associates Degree	0	0	0	0	0	0	0	0
		Bachelors Degree	25	879	1,788	1,022	425	189	97	31
	Total WO Transfer	Enrolled	29,000	20,748	17,543	15,351	9,241	3,831	2,000	624
		Certificate/Diploma	0	0	0	0	0	0	0	0
		Associates Degree	0	0	0	0	0	0	0	0
		Bachelors Degree	11	585	1,354	5,551	5,248	1,794	845	190

Note: Best to use the average of two or three entering cohorts rather than building the model on one cohort.

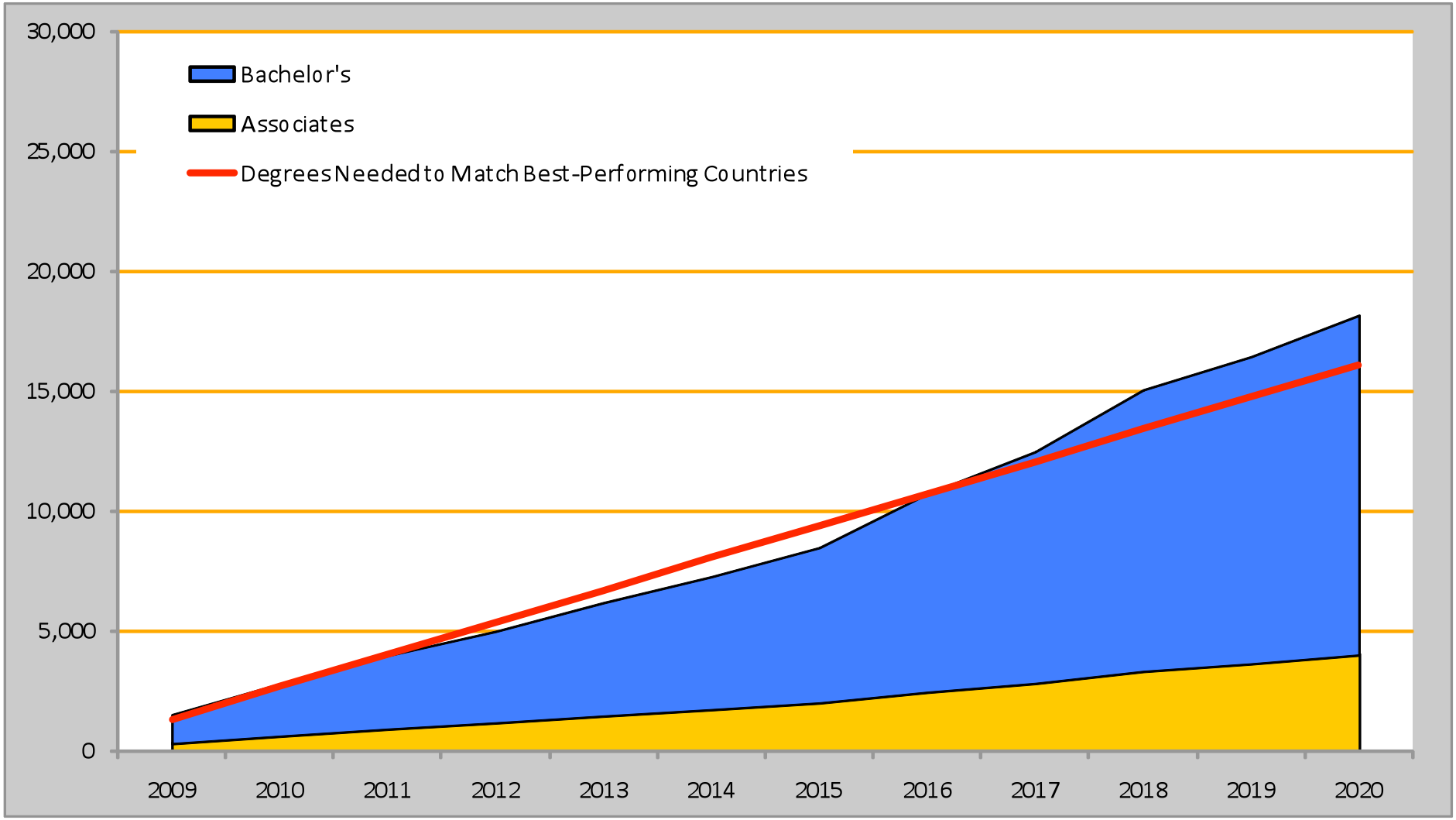
Model Demonstration

Five Percent (Rate) Increase on All Performance Measures

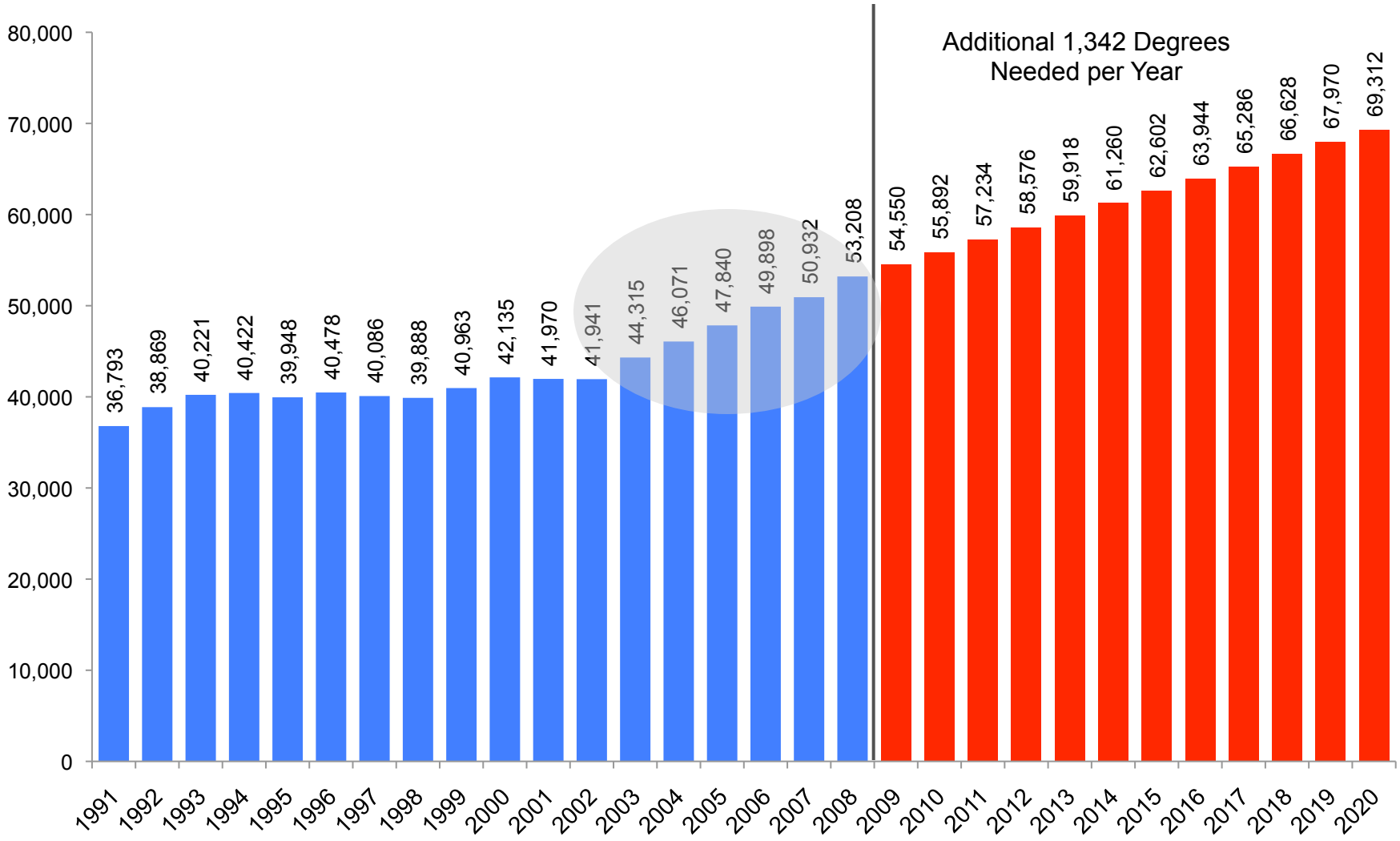


Achieving Best-State Performance

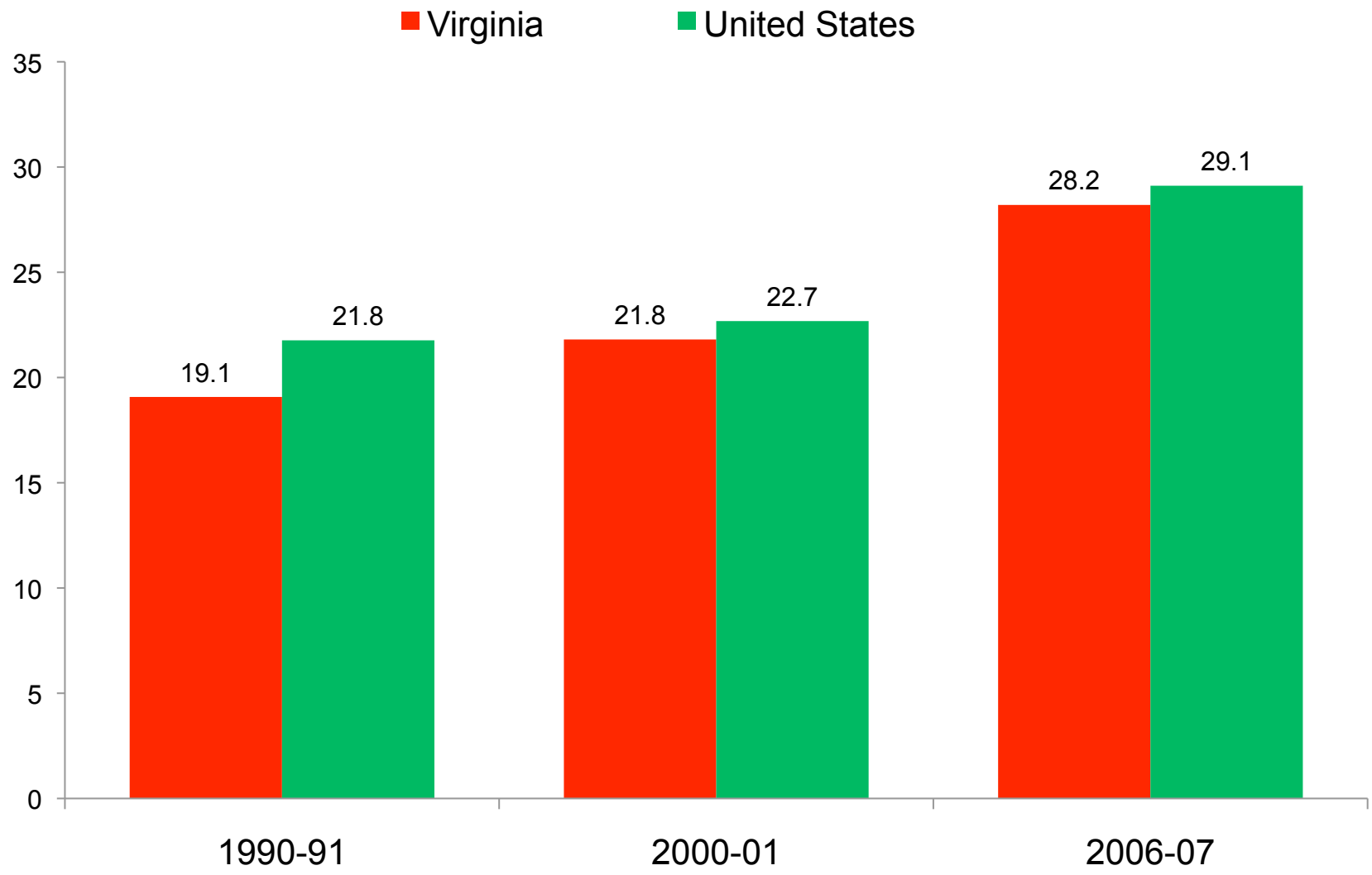
(On Metrics that We have Comparable Data)



Associate and Bachelor's Degrees Awarded in Virginia Past and Future



Undergraduate Credentials Awarded per 1,000 18 to 49 Year Olds with No College Degree (from 1991 to 2007)



Sources: NCES, IPEDS Completions Survey; U.S. Census Bureau's Decennial Census and American Community Survey

Virginia's Student Flow Model

Sensitivity of the Performance Measures: The Impact of a 5% (rate) Increase

Measures on the Dashboard	Additional Degrees			
	Certificates	Associate	Bachelors	Total
Input Rates				
High School Graduation Rate	124	920	4968	6012
In-State Public College-Going Rate	124	920	4968	6012
First-Time Participation Rate 20 to 24	74	251	45	370
First-Time Participation Rate 25 to 49	208	450	119	777
Throughput Rates Public Two-Year				
First-Year Retention Rates	33	163	0	196
Transfer Rates	0	5	626	631
Six-Year Graduation Rates	392	1498	0	1890
Throughput Rates Public Bachelors and Masters				
First-Year Retention Rates	0	13	1836	1849
Six-Year Graduation Rates	0	14	1803	1817
Four-Year Graduation Rates of Transfers Students	0	4	183	187
Throughput Rates Public Research				
First-Year Retention Rates	0	7	3506	3513
Six-Year Graduation Rates	0	7	3421	3428
Four-Year Graduation Rates of Transfers Students	0	1	440	441

Application of the Model in a Policy Environment

Applying the Model in Policymaking

- Long-Term Strategic Planning
- Goal Setting and Accountability
- A tool that provides opportunity to engage key stakeholders in the process
- Examples from States that have Used Similar Models – Kentucky and Arizona

tucky: Council on Postsecondary Education - Over...

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CPE > Double the Numbers > The Five Strategies > **Overview**

DOUBLE THE NUMBERS

Kentucky UNBRIDLED SPIRIT

- The Goal
- The Benefits
- The Five Strategies
- The Regions
- News & Photos
- Logos

THE FIVE STRATEGIES

With help from the National Center for Higher Education Management Systems and Kentucky's nine public postsecondary institutions, the Council has outlined five strategies which, if implemented concurrently over the next 13 years, will produce the additional degree holders needed to Double the Numbers.

- Strategy 1: Raise high school graduation rates.
- Strategy 2: Increase the number of GED graduates and transition more to college.
- Strategy 3: Enroll more first-time students in KCTCS and transfer them to 4-year programs.
- Strategy 4: Increase the number of Kentuckians going to and completing college.
- Strategy 5: Attract college-educated workers to the state and create new jobs for them.

Last Updated 11/8/2007

Five Strategic Goals

Raise High School Graduation Rates

- Increase the number of high school graduates from 40,000 to 48,000.
- Raise the percent of high school freshmen who graduate four years later from 72 percent to 81 percent.

Increase GED Graduates and Transition to College

- Raise the annual number of GED graduates from 9,800 to 15,000.
- Increase the college-going rate of GED graduates from 19 percent to 36 percent.

Enroll More Students in KCTCS and Increase Transfer

- Increase KCTCS enrollment from 86,500 to 115,800.
- Increase KCTCS transfers to four-year universities from 4,500 to 11,300.

Increase Participation and Graduation Rates

- Increase the percent of HS graduates going directly to college from 62 percent to 74 percent.
- Increase the percent of adults in college from 3.6 percent to 4.5 percent.
- Raise the six-year college graduation rate from 45 percent to 56 percent.
- Raise annual bachelor's degrees awarded from 18,200 to 33,700.

Attract More Educated Workers and Increase Job Opportunities

- Attract 80,000 college-educated adults from outside the state to Kentucky through increased job creation and economic development opportunities.

VISION

The Arizona University System

Five-Year Strategic Plan

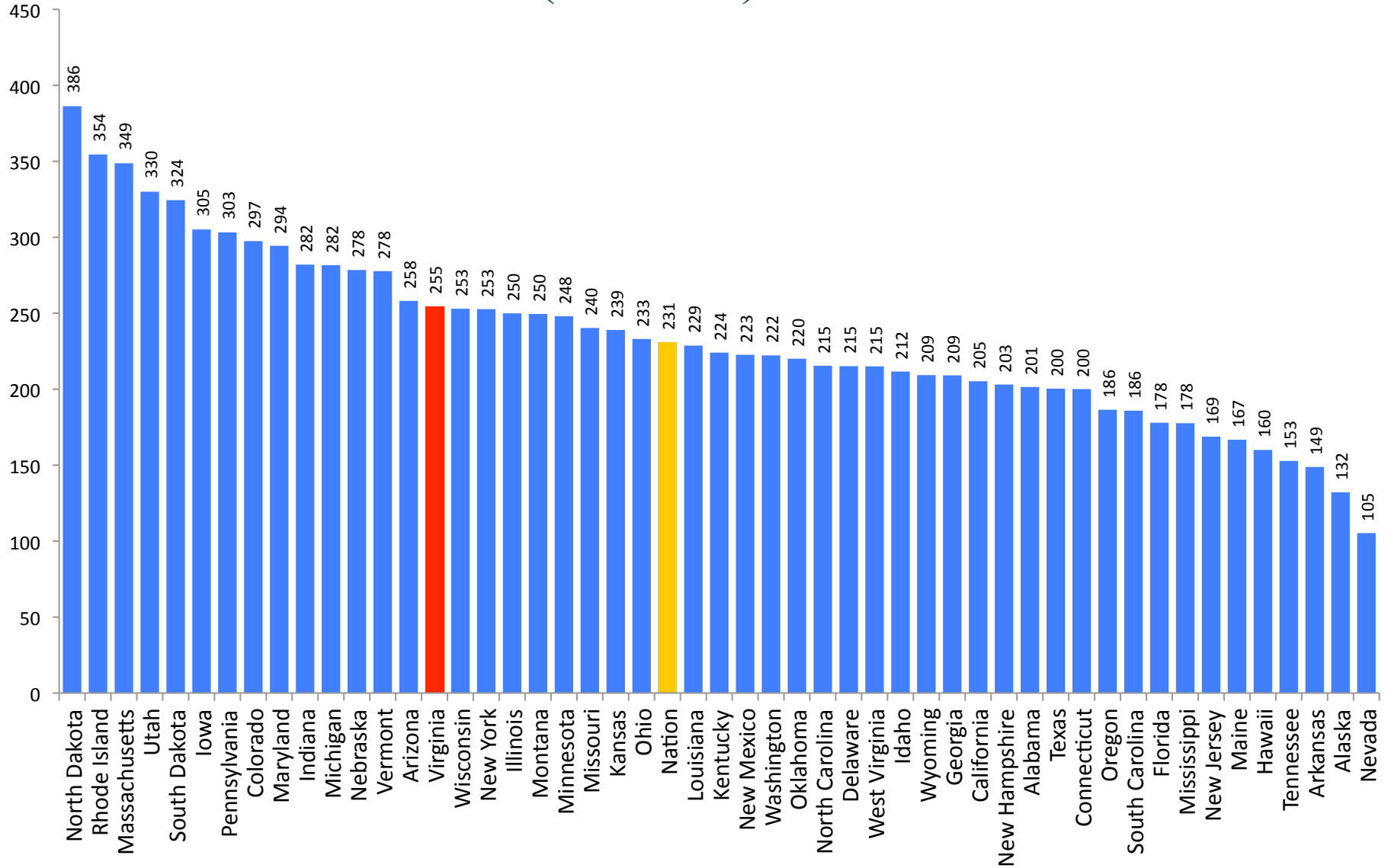
2010-2014

Profile of Arizona Now and Arizona in 2020

Arizona in 2006	**Arizona in 2020**		
	Bronze Target	**Silver** Target	**Gold** Target
25% of adults have Bachelor's Degree 1 Million Adults	26%	28.5%	30%
18,000 Bachelor's Degrees Produced Annually In Arizona University System	21,600	28,000	36,000
78% Freshman Retention	79%	84%	86%
56% 6-Yr Graduation Rate	57%	59%	61%
45% College Going Rate (from K-12)	50%	52%	53%
8,100 Community College Transfers	8,900	19,500	32,500
4,200 Community College Transfers Who Go On To Earn A Bachelor's Degree	5,800	12,000	19,700
93,500 Undergraduate Enrollment	123,000	150,000	182,000
$76 Million Total Research Expenditures	$1.4 Billion	$1.7 Billion	$1.8 Billion

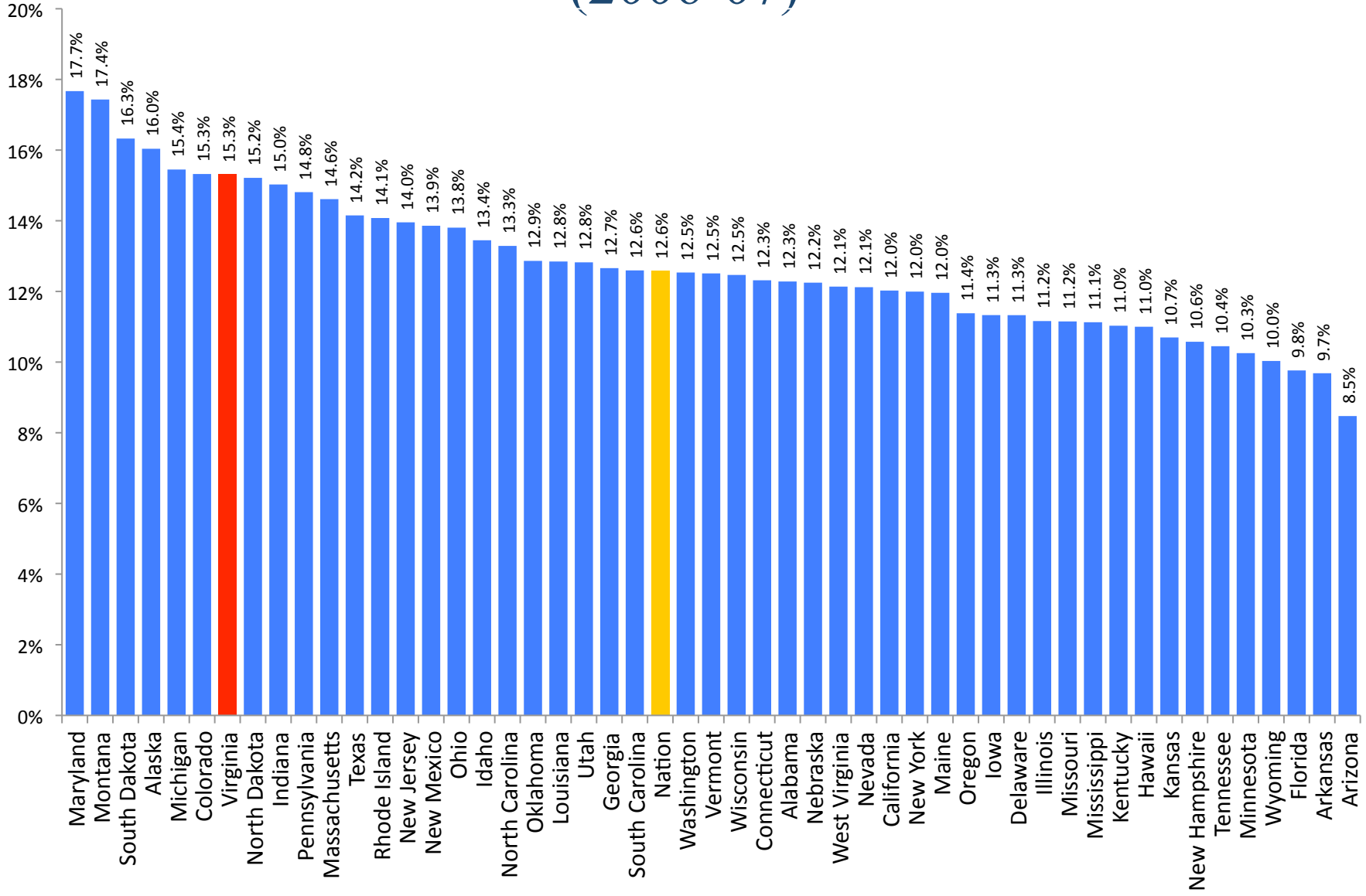
STEM Production

Awards in STEM Fields per 100,000 Working-Age Adults (25 to 64) – 2006-07



Source: NCES, IPEDS Completions Survey; U.S. Census Bureau, Population Estimates

Awards in STEM Fields as a Percent of All Awards (2006-07)



Source: NCES, IPEDS Completions Survey

Distribution of STEM Awards by Level (2006-07)

Virginia and the U.S. Average

Award Level	Virginia	U.S.
Certificate	3.4%	6.6%
Associate	22.7%	15.1%
Bachelors	53.1%	56.2%
Masters	16.4%	16.9%
Doctorate	4.3%	5.2%

Source: NCES, IPEDS Completions Survey

Distribution of STEM Awards by Field (2006-07)

Virginia and the U.S. Average

STEM Field	Virginia	U.S.
Architecture and Related Services	3.1%	3.8%
Computer and Information Sciences and Support Services	23.7%	23.2%
Engineering	27.3%	24.6%
Engineering Technologies/Technicians	13.0%	13.8%
Biological and Biomedical Sciences	19.7%	21.2%
Mathematics and Statistics	4.2%	5.1%
Physical Sciences	8.9%	7.7%
Science Technologies/Technicians	0.0%	0.5%

Source: NCES, IPEDS Completions Survey